Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #1 - Wildlife Structures, Low Complexity

Scenario Description:

This scenario is for the installation of wildlife structures on all land uses where the targeted species has been identified as Rare and Declining and when habitat assessment indicates Inadequate Habitat for Fish or Wildlife-habitat degradation. Structures are of low complexity. This scenario includes structures such as: habitat boxes, perch poles, fence markers, down logs and hand built brush piles. Complexity is defined by the combination of skill level, equipment needed and ease of accessibility for creating and installing these structures. For this scenario the complexity would include; general labor with minimal supervision or skilled labor without supervision; common hand tools and equipment; installation is within a quarter mile of a drivable road; and terrain is gentle to moderate. Facilitating practices may include but not limited to: 382, 391, 647, 660 and 666.

Before Situation:

A habitat assessment (using State Office approved habitat assessment method, protocol or tool) has indicated a need for wildlife structures of low intensity with low complexity to bring one or more habitat limiting factors under Inadequate Habitat for Fish or Wildlife, up to planning criteria. Habitat limiting factors include quality, quantity and continuity of forage, cover, shelter, space and water availability. The structures can be installed within a quarter mile of a drivable road and terrain is gentle to moderate. (consider all the fence markers as one structure)

After Situation:

Installation of wildlife structures bring the identified deficient habitat limiting factors up to planning criteria. The practice is installed using general labor with minimal supervision or skilled labor without supervision with use of common hand tools and small equipment;

Scenario Feature Measure: Number of structures

Scenario Unit: Each

Scenario Typical Size: 4

Scenario Cost: $1,331.57 **Scenario Cost/Unit:** $332.89

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Auger, Post driver attachment	934	Auger or post driver attachment to a tractor or skidsteer. Does not include power unit. Labor not included.	Hour	$8.18	1	$8.18
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$36.36	2	$72.72
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.16	2	$12.32
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	$22.93	1	$22.93
Labor						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12”, Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$24.50	1	$24.50
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.96	16	$367.36
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$45.14	8	$361.12
Materials						
Post, Wood, CCA treated, 6" x 12-14'	13	Wood Post, Line/End 6" X 12-14', CCA Treated. Includes materials and shipping only.	Each	$26.08	4	$104.32
Predator Guard	1461	Predator guards (i.e. stove pipes, cone, hole guard, etc.) for habitat boxes. Materials only. Includes material and shipping only.	Each	$28.58	4	$114.32
Habitat Box, waterfowl	1449	Wood Duck Box, typically 24" x 11" x 12" with 4" wide oval entrance, single. Includes material and shipping only.	Each	$69.82	2	$139.64
Habitat Box, Bat	246	BAT-1 Bat House Single. Includes materials and shipping.	Each	$52.08	2	$104.16

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #2 - Wildlife Structures , High Complexity

Scenario Description:

This scenario is for the installation of wildlife structures on all land uses where the targeted species has been identified as Rare and Declining and when habitat assessment indicates Inadequate Habitat for Fish or Wildlife-habitat degradation. Structures are of high complexity. This scenario includes all the structures in the Wildlife Structures-low and medium scenarios but whose installation may require medium to high intensity with high complexity. This scenario may include the installation structures that require the use of heavy (150+ horse power) equipment. Complexity is defined by the combination of skill level, equipment needed and ease of accessibility for creating and installing these structures. For this scenario the complexity would include: skilled labor and general labor with supervision; common hand tools to heavy equipment; for many of the structures, installation is within a mile of a road: and terrain is moderate to difficult. Facilitating practices may include but not limited to: 382, 391, 647, 660 and 666.

Before Situation:

A habitat assessment (using State Office approved habitat assessment method, protocol or tool) has indicated a need for wildlife structures of medium to high intensity with high complexity to bring one or more habitat limiting factors of inadequate habitat for fish and wildlife, up to planning criteria. (Also included are sites where the planning criteria would require wildlife structures of low intensity but high complexity or high intensity but low complexity) Habitat limiting factors include quality, quantity and continuity of forage, cover, shelter, space and water availability. Many of the needed structures can be installed within a mile of a drivable road and the terrain will range from moderate to difficult.

After Situation:

Installation of wildlife structures bring the identified deficient habitat limiting factors up to planning criteria. Installation of wildlife structures required skilled labor and general labor with supervision and the use of common hand tools to heavy equipment.

Scenario Feature Measure: Number of structures

Scenario Unit: Each

Scenario Typical Size: 12

Scenario Cost: $4,967.71 **Scenario Cost/Unit:** $413.98

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$36.36	8	$290.88
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.16	8	$49.28
Hydraulic Excavator, .5 CY	930	Track mounted hydraulic excavator with bucket capacity range of 0.3 to 0.8 CY. Equipment and power unit costs. Labor not included.	Hour	$54.77	6	$328.62
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$45.14	30	$1,354.20
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12”, Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$38.68	6	$232.08
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.96	60	$1,377.60
Materials						
Habitat Box, waterfowl	1449	Wood Duck Box, typically 24" x 11" x 12" with 4" wide oval entrance, single. Includes material and shipping only.	Each	$69.82	5	$349.10
Habitat Box, Bat	246	BAT-1 Bat House Single. Includes materials and shipping.	Each	$52.08	5	$260.40
Predator Guard	1461	Predator guards (i.e. stove pipes, cone, hole guard, etc.) for habitat boxes. Materials only. Includes material and shipping only.	Each	$28.58	12	$342.96
Post, Wood, CCA treated, 6" x 12-14'	13	Wood Post, Line/End 6" X 12-14', CCA Treated. Includes materials and shipping only.	Each	$26.08	12	$312.96
Mobilization						

Mobilization

Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	$69.63	1	$69.63

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #4 - Monitoring, & Management, Low Intensity and Complexity - No Foregone Income

Scenario Description:

Setting is any land use with the potential to provide habitat for species of plants and animals identified as Rare and Declining and the habitat potential is not currently being captured. The identified habitat limiting factors can be restored, enhanced or created, with the application of this practice alone, or in combination with other supporting and facilitating practices. Monitoring will be used to determine if the conservation system meets or exceeds the minimum quality criteria for the targeted wildlife. Management will be implemented based on the findings of the habitat assessment and monitoring. Habitat management and monitoring needed to treat the resource concerns requires no training, no qualitative data assessment, no water quality monitoring and is low in complexity and intensity. Examples of prescribed monitoring, include but are not limited to: photo points taken, use documentation by livestock, regeneration/breeding success, completing an annual management records log, documenting wildlife sightings, documenting location and species of invasive plants and condition of vegetative and structural treatments. No decision or treatment associated with this practice or facilitating practices will require income foregone. The planner will specify locations and identify the methods to the customer who will implement the monitoring and management plan.

Before Situation:

Existing degraded plant conditions and resulting inadequate habitat for fish and wildlife have resulted in low use of the area by target species identified as Rare and Declining and associated species.

After Situation:

Based on the results of a State-approved upland wildlife habitat assessment process, the application of habitat management efforts and prescribed monitoring have been implemented. With the application of this practice alone, or in combination with other supporting and facilitating practices, the inadequate habitat conditions have been addressed. Monitoring has maximized the benefits of the needed habitat treatment efforts.

Scenario Feature Measure: Acres Managed and Monitored

Scenario Unit: Acre

Scenario Typical Size: 100

Scenario Cost: $1,396.55 **Scenario Cost/Unit:** $13.97

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Mower, Bush Hog	940	Equipment and power unit costs. Labor not included.	Hour	$49.68	16	$794.88
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	$30.03	4	$120.12
Satellite imagery, aerial photography, infrared	966	Infrared imagery	Acre	$0.16	100	$16.00
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$36.36	4	$145.44
Rangeland/grassland field monitoring kit	967	Miscellaneous tools needed to complete rangeland/grassland monitoring. Materials may include camera, clippers, plot frame, scale, tape measure, etc. Includes materials and shipping only.	Each	$43.67	1	$43.67
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.96	4	$91.84
Materials						
Miscellaneous, containers, traps, etc.	298	Pheromone Traps, Culture container with lid. Includes materials and shipping only.	Each	$3.75	4	$15.00
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$169.60	1	$169.60

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #5 - Monitoring & Management, Medium Intensity and Complexity

Scenario Description:

Setting is any land use with the potential to provide habitat for species of plants and animals identified as Rare and Declining and the habitat potential is not currently being captured. The identified habitat limiting factors can be restored, enhanced or created, with the application of this practice alone, or in combination with other supporting and facilitating practices. Monitoring will be used to determine if the conservation system meets or exceeds the minimum quality criteria for the targeted species. Management will be implemented based on the findings of the habitat assessment and monitoring. Habitat management and monitoring needed to treat the resource concerns may require training, no qualitative data assessment, no water quality monitoring and is medium in complexity and intensity. Examples of prescribed monitoring, include but are not limited to: photo points taken, use documentation by livestock, regeneration/breeding success, completing an annual management records log, documenting wildlife sightings, documenting location and species of invasive plants and condition of vegetative and structural treatments. Decisions or treatments associated with this practice or facilitating practices will require income foregone. The planner will specify locations and identify the methods to the customer who will implement the monitoring and management plan.

Before Situation:

Existing degraded plant conditions and resulting inadequate habitat for fish and wildlife have resulted in low use of the area by target species identified as Rare and Declining and associated species.

After Situation:

Based on the results of a State-approved upland wildlife habitat assessment process, the application of habitat management efforts and prescribed monitoring have been implemented. With the application of this practice alone, or in combination with other supporting and facilitating practices, the inadequate habitat conditions have been addressed. Monitoring has maximized the benefits of the needed habitat treatment efforts.

Scenario Feature Measure: Acres Managed and Monitored.

Scenario Unit: Acre

Scenario Typical Size: 100

Scenario Cost: $2,857.05 **Scenario Cost/Unit:** $28.57

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Acquisition of Technical Knowledge						
Training, Registration Costs	296	Conference Registration Fees	Each	$133.62	1	$133.62
Training, Workshops	294	Educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants.	Each	$41.42	1	$41.42
Equipment/Installation						
Mower, Bush Hog	940	Equipment and power unit costs. Labor not included.	Hour	$49.68	16	$794.88
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$36.36	6	$218.16
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	$30.03	6	$180.18
Satellite imagery, aerial photography, infrared	966	Infrared imagery	Acre	$0.16	100	$16.00
Rangeland/grassland field monitoring kit	967	Miscellaneous tools needed to complete rangeland/grassland monitoring. Materials may include camera, clippers, plot frame, scale, tape measure, etc. Includes materials and shipping only.	Each	$43.67	1	$43.67
Labor						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$39.38	6	$236.28
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.96	6	$137.76
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$45.14	6	$270.84

Labor

Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$98.69	6	$592.14

Materials

Miscellaneous, containers, traps, etc.	298	Pheromone Traps, Culture container with lid. Includes materials and shipping only.	Each	$3.75	6	$22.50

Mobilization

Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$169.60	1	$169.60

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #6 - Monitoring, Management, High Intensity and Complexity

Scenario Description:

Setting is any land use with the potential to provide habitat for species of plants and animals identified as Rare and Declining and the habitat potential is not currently being captured. The identified habitat limiting factors can be restored, enhanced or created, with the application of this practice alone, or in combination with other supporting and facilitating practices. Monitoring will be used to determine if the conservation system meets or exceeds the minimum quality criteria for the targeted species. Management will be implemented based on the findings of the habitat assessment and monitoring. Habitat management and monitoring needed to treat the resource concerns may require training, qualitative data assessment, water quality monitoring and is high in complexity and intensity. Examples of prescribed monitoring, include but are not limited to: qualitative data assessment or water quality monitoring, photo points taken, use documentation by livestock, regeneration/breeding success, completing an annual management records log, documenting wildlife sightings, documenting location and species of invasive plants and condition of vegetative and structural treatments. Decisions or treatments associated with this practice or facilitating practices will require income foregone. The planner will specify locations and identify the methods to the customer who will implement the monitoring and management plan.

Before Situation:

Existing degraded plant conditions and resulting inadequate habitat for fish and wildlife have resulted in inadequate use of the area by target rare and declining species and associated species.

After Situation:

Based on the results of a State-approved upland wildlife habitat assessment process, the application of habitat management efforts and prescribed monitoring have been implemented. With the application of this practice alone, or in combination with other supporting and facilitating practices, the inadequate conditions and deficiencies have been addressed. Monitoring has maximized the benefits of the needed habitat treatment efforts.

Scenario Feature Measure: Acres Managed and Monitored.

Scenario Unit: Acre

Scenario Typical Size: 100

Scenario Cost: $3,628.38 **Scenario Cost/Unit:** $36.28

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Acquisition of Technical Knowledge						
Training, Registration Costs	296	Conference Registration Fees	Each	$133.62	2	$267.24
Training, Workshops	294	Educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants.	Each	$41.42	2	$82.84
Equipment/Installation						
Rangeland/grassland field monitoring kit	967	Miscellaneous tools needed to complete rangeland/grassland monitoring. Materials may include camera, clippers, plot frame, scale, tape measure, etc. Includes materials and shipping only.	Each	$43.67	2	$87.34
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$36.36	8	$290.88
Mower, Bush Hog	940	Equipment and power unit costs. Labor not included.	Hour	$49.68	16	$794.88
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	$30.03	8	$240.24
Satellite imagery, aerial photography, infrared	966	Infrared imagery	Acre	$0.16	100	$16.00
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.96	8	$183.68
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$45.14	8	$361.12
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$39.38	8	$315.04

Labor

Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$98.69	8	$789.52

Materials

Miscellaneous, containers, traps, etc.	298	Pheromone Traps, Culture container with lid. Includes materials and shipping only.	Each	$3.75	8	$30.00

Mobilization

Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$169.60	1	$169.60

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #7 - Topographic Feature Creation, Low Complexity & Intensity - No Foregone Income

Scenario Description:

Setting is any land use with the potential to provide habitat for species of plants and animals identified as Rare and Declining and the habitat potential is not currently being captured. This scenario is typically occurs on lands used for the production of forest products, grazing and/or fish and wildlife where the slope gradient is less than two percent and predominant soils are not excessively drained. The State-approved habitat evaluation or appraisal found that a limiting factor for species of plants and animals identified as rare and declining is the absence of sufficient variability in microtopograpic relief in the area. The construction of low intensity and low complexity topographic features will provide for diverse soil hydrologic conditions needed to treat the degraded plant condition and/or inadequate habitat for rare and declining species. The construction of micro and macro topographic features can be implemented with the use of equipment with less than 70 HP. This scenario is for earthwork, not associated with habitat structures or any other national standard (e.g. Wetland Restoration (657), Wetland Enhancement (659), Wetland Creation (658), and Dike (356)).

Before Situation:

The site lacks sufficient micro- and macrotopographic features needed for optimal habitat for target rare and declining species. Typically the site has been previously manipulated and utilized for agricultural, livestock or forest production. With the loss of hummocks, depressions and other topographic features scattered throughout the site, both plant and animal species that are dependent on the microenvironments created by these features are no longer present or are in decline within the planning unit.

After Situation:

Appropriate low horsepower equipment, such as, rubber tired tractor and farm implements (i.e. – box blade, scraper blade, grader blade, front end-loader, etc) were used to construct planned topographic features essential for identified species. As a result of the installation, the topograpic relief needed to provide the varied habitat needs is provided.

Scenario Feature Measure: number and size of constructed features

Scenario Unit: Acre

Scenario Typical Size: 50

Scenario Cost: $13,530.50 **Scenario Cost/Unit:** $270.61

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Hydraulic Excavator, .5 CY	930	Track mounted hydraulic excavator with bucket capacity range of 0.3 to 0.8 CY. Equipment and power unit costs. Labor not included.	Hour	$54.77	40	$2,190.80
Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic yard	$5.62	10	$56.20
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	$3.50	10	$35.00
Satellite imagery, aerial photography, infrared	966	Infrared imagery	Acre	$0.16	50	$8.00
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.30	10	$23.00
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$4.27	10	$42.70
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	$22.93	40	$917.20
Labor						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$39.38	40	$1,575.20
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.96	40	$918.40
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$24.50	40	$980.00

Mobilization

Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$169.60	40	$6,784.00

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #8 - Topographic Feature Creation, Medium Complexity & Intensity, Foregone Income

Scenario Description:

Setting is any land use with the potential to provide habitat for species of plants and animals identified as Rare and Declining and the habitat potential is not currently being captured. This scenario is typically occurs on lands used for the production of forest products, grazing and/or fish and wildlife where the slope gradient is less than two percent and predominant soils are not excessively drained. The State-approved habitat evaluation or appraisal found that a limiting factor for species of plants and animals identified as rare and declining is the absence of sufficient variability in microtopograpic relief in the area. The construction of medium intensity and medium complexity topographic features will provide for diverse soil hydrologic conditions needed to treat the degraded plant condition and/or inadequate habitat for rare and declining species. The construction of micro and macro topographic features can be implemented with the use of equipment in the 70-150 HP range due to current site conditions and implementation techniques. This scenario is for earthwork, not associated with habitat structures or any other national standard (e.g. Wetland Restoration (657), Wetland Enhancement (659), Wetland Creation (658), and Dike (356)).

Before Situation:

The site lacks sufficient micro- and macrotopographic features needed for optimal habitat for target rare and declining species. Typically the site has been previously manipulated and utilized for agricultural, livestock or forest production. With the loss of hummocks, depressions and other topographic features scattered throughout the site, both plant and animal species that are dependent on the microenvironments created by these features are no longer present or are in decline within the planning unit.

After Situation:

Appropriate equipment (i.e. – Skidsteer, Farm Tractor, Small Dozer, etc) was used to construct planned topographic features essential for identified species. As a result of the installation, adequate habitat needs have been provided.

Scenario Feature Measure: number and size of constructed features

Scenario Unit: Acre

Scenario Typical Size: 50

Scenario Cost: $57,924.05 **Scenario Cost/Unit:** $1,158.48

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
	1141				10	
	1143				10	
	1145				10	
Equipment/Installation						
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$54.77	60	$3,286.20
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	$111.56	60	$6,693.60
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.30	15	$34.50
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	$3.50	15	$52.50
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$4.27	15	$64.05
Dozer, 140 HP	927	Track mounted Dozer with horsepower range of 125 to 160. Equipment and power unit costs. Labor not included.	Hour	$121.59	60	$7,295.40
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$65.73	60	$3,943.80
Satellite imagery, aerial photography, infrared	966	Infrared imagery	Acre	$0.16	50	$8.00
Tractor, agricultural, 120 HP	962	Agricultural tractor with horsepower range of 90 to 140. Equipment and power unit costs. Labor not included.	Hour	$53.41	60	$3,204.60
Track Loader, 95HP	935	Equipment and power unit costs. Labor not included.	Hour	$86.61	60	$5,196.60

Equipment/Installation

Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic yard	$5.62	15	$84.30
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$42.21	60	$2,532.60

Foregone Income

FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$340.36	12.5	$4,254.50
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$313.51	25	$7,837.75
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$239.62	12.5	$2,995.25

Labor

Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$45.14	60	$2,708.40
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$39.38	60	$2,362.80
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12”, Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$24.50	60	$1,470.00
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.96	60	$1,377.60

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$252.16	10	$2,521.60

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #9 - Topographic Feature Creation, High Complexity & Intensity - Includes Foregone Income

Scenario Description:

Setting is any land use with the potential to provide habitat for species of plants and animals identified as Rare and Declining and the habitat potential is not currently being captured. This scenario is typically occurs on lands used for the production of forest products, grazing and/or fish and wildlife where the slope gradient is less than two percent and predominant soils are not excessively drained. The State-approved habitat evaluation or appraisal found that a limiting factor for species of plants and animals identified as rare and declining is the absence of sufficient variability in microtopograpic relief in the area. The construction of construction of high intensity and high complexity topographic features will provide for diverse soil hydrologic conditions needed to treat the degraded plant condition and/or inadequate habitat for rare and declining species. The construction of micro and macro topographic features will require the use of equipment 150 HP in size or larger due to current site conditions and implementation techniques. This scenario is for earthwork, not associated with habitat structures or any other national standard (e.g. Wetland Restoration (657), Wetland Enhancement (659), Wetland Creation (658), and Dike (356)).

Before Situation:

The site lacks sufficient micro- and macrotopographic features needed for optimal habitat for target rare and declining species. Typically the site has been previously manipulated and utilized for agricultural, livestock or forest production. With the loss of hummocks, depressions and other topographic features scattered throughout the site, both plant and animal species that are dependent on the microenvironments created by these features are no longer present or are in decline within the planning unit.

After Situation:

Appropriate equipment (i.e. – Dozer, Excavator, etc) was used to construct planned topographic features essential for identified species. As a result of the installation, adequate habitat needs have been provided.

Scenario Feature Measure: number and size of constructed features

Scenario Unit: Acre

Scenario Typical Size: 50

Scenario Cost: $66,237.10 **Scenario Cost/Unit:** $1,324.74

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
	1141				20	
	1144				20	
	1145				20	
Equipment/Installation						
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.30	20	$46.00
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	$3.50	20	$70.00
Satellite imagery, aerial photography, infrared	966	Infrared imagery	Acre	$0.16	50	$8.00
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$4.27	20	$85.40
Dozer, 200 HP	928	Track mounted Dozer with horsepower range of 160 to 250. Equipment and power unit costs. Labor not included.	Hour	$182.35	80	$14,588.00
Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic yard	$5.62	20	$112.40
Hydraulic Excavator, 2 CY	932	Track mounted hydraulic excavator with bucket capacity range of 1.5 to 2.5 CY. Equipment and power unit costs. Labor not included.	Hour	$186.48	80	$14,918.40
Foregone Income						
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$239.62	12.5	$2,995.25
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$340.36	12.5	$4,254.50
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$313.51	25	$7,837.75
Labor						

Labor

Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$45.14	80	$3,611.20
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$38.68	80	$3,094.40
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$39.38	80	$3,150.40
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.96	80	$1,836.80

Mobilization

Mobilization, large equipment	1140	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	$481.43	20	$9,628.60

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #10 - Establish Annual Vegetation - Broadcast w/ Fertilization (FI)

Scenario Description:

This scenario is for the establishment of annual (non-persistent) vegetation on all land uses where the targeted species has been identified as Rare and Declining. This scenario is utilized when habitat assessment indicates Inadequate Habitat for Fish or Wildlife-habitat degradation. The typical size range for this scenario is 5 to 50 acres. This scenario would be applied on any land use where habitats are utilized by species indentified as rare & declining. This practice scenario is typically used to reduce soil erosion, reduce soil quality degradation, improve water quality and develop wildlife habitat as part of a habitat management system. Often times this scenario is utilized to temporarily provide cover or forage while permanent vegetation is being established. Vegetation will be established utilizing convenational methods including disking, herbicide applicaiton and broadcast seeding. Fertilization will be required and will be completed in response to a soil test.

Before Situation:

A habitat assessment (using State Office approved habitat assessment method, protocol or tool) has indicated a need to establish annual (non-persistent) vegetation to bring one or more habitat limiting factors of inadequate habitat for fish and wildlife, up to planning criteria. An evaluation of the site has indicated resource concerns are present, or may become present during the implementation of the habitat management system planned. Resource concerns identified may include soil erosion with visible rills present resultging in sediment moving offsite into surface water degrading water quality. Soil quality (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. Air quality may be impacted during field operations by the creation of particulates. The current system provides little to no wildlife habitat with habitat limiting factors such as quality, quantity and continuity of forage, cover, shelter and space being identified.

After Situation:

Planning unit is adequatly covered with annual (non-persistent) vegetation. As a result of installation soil erosion, water/sediment runoff, and/or dust emissions have been eliminated. Plants sown provide cover and forage for target species. Forage may include the vegetation itself or promote an abundance of beneficial insects. This scenario does not apply to plantings for forage production or critical area plantings and vegetation established under this scenario will remain unharvested.

Scenario Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 25

Scenario Cost: $12,179.41 **Scenario Cost/Unit:** $487.18

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$6.28	25	$157.00
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	$11.65	25	$291.25
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.68	25	$142.00
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	$15.37	25	$384.25
Foregone Income						
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$313.51	12.5	$3,918.88
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$340.36	6.25	$2,127.25
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$239.62	6.25	$1,497.63
Materials						
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.39	1250	$487.50
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.28	1000	$280.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$15.83	25	$395.75

Materials

Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	$50.33	25	$1,258.25
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.79	1250	$987.50

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$252.16	1	$252.16

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #11 - Establish Annual Vegetation - Broadcast; No Fertilization (FI)

Scenario Description:

This scenario is for the establishment of annual (non-persistent) vegetation on all land uses where the targeted species has been identified as Rare and Declining. This scenario is utilized when habitat assessment indicates Inadequate Habitat for Fish or Wildlife-habitat degradation. The typical size range for this scenario is 5 to 50 acres. This scenario would be applied on any land use where habitats are utilized by species indentified as rare & declining. This practice scenario is typically used to reduce soil erosion, reduce soil quality degradation, improve water quality and develop wildlife habitat as part of a habitat management system. Often times this scenario is utilized to temporarily provide cover or forage while permanent vegetation is being established. Vegetation will be established utilizing convenational methods including disking, herbicide applicaiton and broadcast seeding. Fertilization will NOT be required.

Before Situation:

A habitat assessment (using State Office approved habitat assessment method, protocol or tool) has indicated a need to establish annual (non-persistent) vegetation to bring one or more habitat limiting factors of inadequate habitat for fish and wildlife, up to planning criteria. An evaluation of the site has indicated resource concerns are present, or may become present during the implementation of the habitat management system planned. Resource concerns identified may include soil erosion with visible rills present resultging in sediment moving offsite into surface water degrading water quality. Soil quality (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. Air quality may be impacted during field operations by the creation of particulates. The current system provides little to no wildlife habitat with habitat limiting factors such as quality, quantity and continuity of forage, cover, shelter and space being identified.

After Situation:

Planning unit is adequatly covered with annual (non-persistent) vegetation. As a result of installation soil erosion, water/sediment runoff, and/or dust emissions have been eliminated. Plants sown provide cover and forage for target species. Forage may include the vegetation itself or promote an abundance of beneficial insects. This scenario does not apply to plantings for forage production or critical area plantings and vegetation established under this scenario will remain unharvested. Fetilization will NOT be required.

Scenario Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 25

Scenario Cost: $10,267.41 **Scenario Cost/Unit:** $410.70

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	$15.37	25	$384.25
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.68	25	$142.00
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	$11.65	25	$291.25
Foregone Income						
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$239.62	6.25	$1,497.63
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$340.36	6.25	$2,127.25
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$313.51	12.5	$3,918.88
Materials						
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	$50.33	25	$1,258.25
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$15.83	25	$395.75
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$252.16	1	$252.16

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #12 - Establish Annual Vegetation - Drill w/ Fertilization (FI)

Scenario Description:

This scenario is for the establishment of annual (non-persistent) vegetation on all land uses where the targeted species has been identified as Rare and Declining. This scenario is utilized when habitat assessment indicates Inadequate Habitat for Fish or Wildlife-habitat degradation. The typical size range for this scenario is 5 to 50 acres. This scenario would be applied on any land use where habitats are utilized by species indentified as rare & declining. This practice scenario is typically used to reduce soil erosion, reduce soil quality degradation, improve water quality and develop wildlife habitat as part of a habitat management system. Often times this scenario is utilized to temporarily provide cover or forage while permanent vegetation is being established. Establishment of vegetation will require methods including light disking, herbicide applicaiton and use of seed drill for planting. Fertilization will be required and will be completed in response to a soil test.

Before Situation:

A habitat assessment (using State Office approved habitat assessment method, protocol or tool) has indicated a need to establish annual (non-persistent) vegetation to bring one or more habitat limiting factors of inadequate habitat for fish and wildlife, up to planning criteria. An evaluation of the site has indicated resource concerns are present, or may become present during the implementation of the habitat management system planned. Resource concerns identified may include soil erosion with visible rills present resultging in sediment moving offsite into surface water degrading water quality. Soil quality (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. Air quality may be impacted during field operations by the creation of particulates. The current system provides little to no wildlife habitat with habitat limiting factors such as quality, quantity and continuity of forage, cover, shelter and space being identified.

After Situation:

Planning unit is adequatly covered with annual (non-persistent) vegetation. As a result of installation soil erosion, water/sediment runoff, and/or dust emissions have been eliminated. Plants sown provide cover and forage for target species. Forage may include the vegetation itself or promote an abundance of beneficial insects. This scenario does not apply to plantings for forage production or critical area plantings and vegetation established under this scenario will remain unharvested.

Scenario Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 25

Scenario Cost: $11,998.16 **Scenario Cost/Unit:** $479.93

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.77	25	$494.25
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$6.28	25	$157.00
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.68	25	$142.00
Foregone Income						
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$239.62	6.25	$1,497.63
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$313.51	12.5	$3,918.88
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$340.36	6.25	$2,127.25
Materials						
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.28	1000	$280.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$15.83	25	$395.75
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	$50.33	25	$1,258.25
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.79	1250	$987.50

Materials

Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.39	1250	$487.50

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$252.16	1	$252.16

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #13 - Establish Annual Vegetation - Drill; No Fertilization (FI)

Scenario Description:

This scenario is for the establishment of annual (non-persistent) vegetation on all land uses where the targeted species has been identified as Rare and Declining. This scenario is utilized when habitat assessment indicates Inadequate Habitat for Fish or Wildlife-habitat degradation. The typical size range for this scenario is 5 to 50 acres. This scenario would be applied on any land use where habitats are utilized by species indentified as rare & declining. This practice scenario is typically used to reduce soil erosion, reduce soil quality degradation, improve water quality and develop wildlife habitat as part of a habitat management system. Often times this scenario is utilized to temporarily provide cover or forage while permanent vegetation is being established. Establishment of vegetation will require methods including light disking, herbicide applicaiton and use of seed drill for planting. Fertilization will NOT be required.

Before Situation:

A habitat assessment (using State Office approved habitat assessment method, protocol or tool) has indicated a need to establish annual (non-persistent) vegetation to bring one or more habitat limiting factors of inadequate habitat for fish and wildlife, up to planning criteria. An evaluation of the site has indicated resource concerns are present, or may become present during the implementation of the habitat management system planned. Resource concerns identified may include soil erosion with visible rills present resultging in sediment moving offsite into surface water degrading water quality. Soil quality (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. Air quality may be impacted during field operations by the creation of particulates. The current system provides little to no wildlife habitat with habitat limiting factors such as quality, quantity and continuity of forage, cover, shelter and space being identified.

After Situation:

Planning unit is adequatly covered with annual (non-persistent) vegetation. As a result of installation soil erosion, water/sediment runoff, and/or dust emissions have been eliminated. Plants sown provide cover and forage for target species. Forage may include the vegetation itself or promote an abundance of beneficial insects. This scenario does not apply to plantings for forage production or critical area plantings and vegetation established under this scenario will remain unharvested. Fetilization will NOT be required.

Scenario Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 25

Scenario Cost: $10,086.16 **Scenario Cost/Unit:** $403.45

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.68	25	$142.00
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.77	25	$494.25
Foregone Income						
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$239.62	6.25	$1,497.63
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$340.36	6.25	$2,127.25
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$313.51	12.5	$3,918.88
Materials						
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$15.83	25	$395.75
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	$50.33	25	$1,258.25
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$252.16	1	$252.16

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #14 - Topdressing for Wildlife

Scenario Description:

Nitrogen, potassium and phosphorus are applied to existing cool season grassland to promote a desireable plant comummunity for wildlife food and cover. Application rate is based on recommendations from a soil test targeting wildlife habitat. Application rate should not be based on production agriculture. Fertilizer is applied during the growing season.

Before Situation:

Grass stand is thinning due to lack of nutrients or high acidity in the soil, and no longer provides adequate cover and/or food for grassland nesting birds or other grassland dependent wildlife.

After Situation:

Fertilizer has been applied according to a soil test and using appropriate equipment. The new vegetative conditions are conductive to use by target grassland nesting birds and other grassland dependent wildlife.

Scenario Feature Measure: Acre of existing grassland

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: $488.80 **Scenario Cost/Unit:** $48.88

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$6.28	10	$62.80
Materials						
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.28	400	$112.00
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.39	400	$156.00
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.79	200	$158.00

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #1 - Oyster Bar - Purchase and place

Scenario Description:

Restore oyster bar by placing shell on the bottom to create a 2-inch thick shell base. Oyster spat may be seeded or recruited via natural spatfall.

Before Situation:

Bay or tidal river bottom where conditions are appropriate for oyster growth and survival, but lacking shell and oyster production. The resource concern is lack of habitat associated with oyster bars and oyster reproduction. The lack of living oyster bars negatively effects water quality because oysters can remove significant quantities of nutrients and sediments.

After Situation:

One acre of osyter bar will be restored. The bar will consist of 2 acre-inches of shell bed. The restored oyster bar will be able to support oyster growth and reproduction, and provide habitat for many other aquatic species. The living oysters will remove significant quantities of nutrients and sediments, thereby enhancing water quality. These bars will be maintained by oyster farmers to ensure survival of the bar, and will be harvested and replenished to maintain healthy functioning.

Scenario Feature Measure:

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: $10,679.72 **Scenario Cost/Unit:** $10,679.72

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Track Loader, 95HP	935	Equipment and power unit costs. Labor not included.	Hour	$86.61	4	$346.44
Barge with crane and operator	2408	Barge to transport and place 1 ton bags of cultch to form oyster reef habitat.	Hour	$356.49	8	$2,851.92
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$45.14	12	$541.68
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.96	12	$275.52
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12”, Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$38.68	2	$77.36
Materials						
Cultch	2409	Cultch material (used and/or slightly crushed, cleaned, medium to large sized shells). Includes materials only.	Ton	$59.88	110	$6,586.80

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #1 - Oyster Bar - Dredge, purchase, place

Scenario Description:

Restore oyster bar by dredging bottom multiple times to reclaim shell from sediments. Then purchase and place an additional inch of shell to create a 2-inch thick shell base. Oyster spat may be seeded or recruited via natural spatfall.

Before Situation:

Bay or tidal river bottom where conditions are appropriate for oyster growth and survival, but lacking shell and oyster production. Enough shell is present but buried in shallow sediments to dredge up 50% of the necessary shell to create a 2-inch shell base. The other 50% of shell must be purchcased. The resource concern is lack of habitat associated with oyster bars and oyster reproduction. The lack of living oyster bars negatively effects water quality because oysters can remove significant quantities of nutrients and sediments.

After Situation:

One acre of osyter bar will be restored. The bar will consist of 2 acre-inches of shell bed. The restored oyster bar will be able to support oyster growth and reproduction, and provide habitat for many other aquatic species. The living oysters will remove significant quantities of nutrients and sediments, thereby enhancing water quality. These bars will be maintained by oyster farmers to ensure survival of the bar, and will be harvested and replenished to maintain healthy functioning.

Scenario Feature Measure:

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: $6,827.83 **Scenario Cost/Unit:** $6,827.83

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Barge with crane and operator	2408	Barge to transport and place 1 ton bags of cultch to form oyster reef habitat.	Hour	$356.49	5	$1,782.45
Boat, 150 HP	2407	22 foot boat with 150hp motor used to place cultch to create reef habitat.	Hour	$159.80	5	$799.00
Track Loader, 95HP	935	Equipment and power unit costs. Labor not included.	Hour	$86.61	2	$173.22
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.96	7	$160.72
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12”, Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$38.68	2	$77.36
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$45.14	12	$541.68
Materials						
Cultch	2409	Cultch material (used and/or slightly crushed, cleaned, medium to large sized shells). Includes materials only.	Ton	$59.88	55	$3,293.40

Practice: 643 - Restoration and Management of Rare and Declining Habitats

Scenario: #1 - Oyster Bar - Dredge Only

Scenario Description:

Restore oyster bar by dredging bottom multiple times to reclaim 2 inch of shell from sediments. Oyster spat may be seeded or recruited via natural spatfall.

Before Situation:

Bay or tidal river bottom where conditions are appropriate for oyster growth and survival, but lacking shell and oyster production. Enough shell is present but buried in shallow sediments to dredge up the necessary shell to create a 2-inch shell base. The resource concern is lack of habitat associated with oyster bars and oyster reproduction. The lack of living oyster bars negatively effects water quality because oysters can remove significant quantities of nutrients and sediments.

After Situation:

One acre of osyter bar will be restored. The bar will consist of 2 acre-inches of shell bed. The restored oyster bar will be able to support oyster growth and reproduction, and provide habitat for many other aquatic species. The living oysters will remove significant quantities of nutrients and sediments, thereby enhancing water quality. These bars will be maintained by oyster farmers to ensure survival of the bar, and will be harvested and replenished to maintain healthy functioning.

Scenario Feature Measure:

Scenario Unit: Acre

Scenario Typical Size: 1

Scenario Cost: $1,537.05 **Scenario Cost/Unit:** $1,537.05

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Boat, 150 HP	2407	22 foot boat with 150hp motor used to place cultch to create reef habitat.	Hour	$159.80	7.5	$1,198.50
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$45.14	7.5	$338.55